



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,789	03/22/2004	Hai-Feng Wang	MS1-606USC1	2367
22801	7590	08/20/2007	EXAMINER	
LEE & HAYES PLLC			SANDERS, AARON J	
421 W RIVERSIDE AVENUE SUITE 500				
SPOKANE, WA 99201			ART UNIT	PAPER NUMBER
			2168	
			MAIL DATE	DELIVERY MODE
			08/20/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.	Applicant(s)	
10/806,789	WANG ET AL.	
Examiner	Art Unit	
Aaron Sanders	2168	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

1) Responsive to communication(s) filed on 21 June 2007.  
2a) This action is FINAL. 2b) This action is non-final.  
3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

4) Claim(s) 37-41 and 72-82 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) Claim(s) \_\_\_\_\_ is/are allowed.  
6) Claim(s) 37-41 and 72-82 is/are rejected.  
7) Claim(s) \_\_\_\_\_ is/are objected to.  
8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

9) The specification is objected to by the Examiner.  
10) The drawing(s) filed on 22 March 2004 is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) All b) Some \* c) None of:  
1. Certified copies of the priority documents have been received.  
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

1) Notice of References Cited (PTO-892)  
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 06/21/2007.

4) Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) Notice of Informal Patent Application  
6) Other: \_\_\_\_\_.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 23 May 2007 has been entered.

### *Drawings*

Figs. 8 and 9 are objected to because of improper shading. All drawings must be made by a process which will give them satisfactory reproduction characteristics. See 37 C.F.R. 1.84(l) and (m).

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

Art Unit: 2168

pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Objections*

As per claims 38-41, the claims should begin “The method as recited in claim 37 (39)”.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 37-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. 6,584,464 (hereinafter Warthen), in view of U.S. 6,006,225 (hereinafter Bowman).

37. A method comprising:

receiving a query (See e.g. Warthen col. 1, lines 54-67, “The query input processor is used for accepting an initial user query”);

mapping the query from a query space to a question space to identify associated frequently asked questions, the mapping comprises (See e.g. Warthen col. 2, lines 1-11, “a semantic network to obtain a weighted list of well-formed questions representative of possible semantic meanings for the initial user query”):

analyzing a log database to determine a relevance of previously stored frequently asked questions to the query (Warthen teaches logging previous queries, see col. 4, lines 31-42, "The query is logged to log files 20 for use in further refining information server 50". Warthen does not explicitly teach analyzing those logs to determine the relevance of previously stored queries to the current query. However, Bowman does, see e.g. col. 4, lines 23-43, "In the preferred embodiment, the query term correlation date is regenerated periodically from recent query submissions, such as by using the last M days of entries in a query log, and thus heavily reflects the current tastes of users". Thus, it would have been obvious to one of ordinary skill in the database art at the time of the invention to combine the teachings of the cited references because Bowman's teachings would have allowed Warthen's method to gain greater query refinement, see col. 4, lines 23-43); and

ascertaining from the previously stored frequently asked questions the associated frequently asked questions based on the determined relevance (Warthen does not explicitly teach determining relevant queries associated with the logged queries.

However, Bowman does, see e.g. col. 4, lines 23-43, "As a result, the related terms suggested by the search engine tend to be terms that correspond to the most frequently searched items during the relevant time period". Thus, it would have been obvious to one of ordinary skill in the database art at the time of the invention to combine the teachings of the cited references because Bowman's teachings would have allowed Warthen's method to gain greater query refinement, see col. 4, lines 23-43);

mapping the associated frequently asked questions from the question space to a template space to identify associated templates (See e.g. Warthen col. 3, lines 41-51, "QPE 30 is coupled

to dictionary 34 and semantic net snapshot 40 and uses the information obtained from those sources to generate template questions in response to a user-entered question” where QPE means “Query Processing Engine” and the referenced “semantic net” is the claimed “question space”);

mapping the templates from the template space to an answer space to identify associated answers (See e.g. Warthen col. 3, lines 41-51, “Template questions are questions that are mapped to answers in question-answer mapping table 42”); and

returning the answers in response to the query (See e.g. Warthen col. 4, lines 19-24, “information server 50 uses AE [*sic*] to generate answers to the questions and either presents the user with one or more URL’s of sites that answer the initial question” where “AE” should be “APE” and means “Answer Processing Engine”, see Fig. 1).

38. A method as recited in claim 37, wherein the mapping from the query space to the question space comprises:

parsing the query to identify at least one associated concept (See e.g. Warthen col. 5, lines 26-35, “Another approach to tokenizing is to scan the initial user query and group words into conceptual strings”); and

correlating the concept to one or more frequently asked questions (See e.g. Warthen col. 5, lines 26-35, “Tokenizer 150 converts the initial user query into a list of words and provides the list to parser 155” where, see Warthen’s Abstract, “the question processor includes a tokenizer for tokenizing the initial user query into a list of words” and, see Abstract, “The question processor processes the initial user query to identify a set of possible well-formed questions selected from the question database, where a well-formed question is a question in the database

that is coupled to at least one answer reference” which correlates the concepts to frequently asked questions).

39. A method as recited in claim 37, wherein the mapping from the question space to the template space comprises cross-indexing from a first table containing question identifications to a second table containing template identifications (See e.g. Warthen col. 3, lines 41-51, “a knowledge base 36, which comprises storage for a semantic net snapshot 40 and a question-answer mapping table 42. QPE 30 is coupled to dictionary 34 and semantic net snapshot 40 and uses the information obtained from those sources to generate template questions in response to a user-entered question”).

40. A method as recited in claim 39, wherein the mapping from the template space to the answer space comprises cross-indexing from the second table to a third table containing answer identifications (See e.g. Warthen col. 3, lines 41-51, “Template questions are questions that are mapped to answers in question-answer mapping table 42”).

41. A method as recited in claim 37, further comprising:

presenting the answers to a user for confirmation as to which of the answers represent the user’s intentions in the query (See e.g. Warthen Fig. 3);

analyzing the query and the answers confirmed by the user (See e.g. Warthen col. 5, lines 8-14, “FIG. 3 shows an example display 90 resulting from such a questions display page. From that display 90, the user can select the desired template question and parameters, or can select a button 92 for more answers, resulting in a display such as that shown in FIG. 4”); and

modifying the answers that are returned in response to the query based on information gleaned from the analyzing (See e.g. Warthen Figs. 3 and 4).

Claims 72-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. 6,584,464 (hereinafter Warthen), in view of U.S. 6,687,689 (hereinafter Fung).

72. A method of parsing a search query, comprising:

segmenting the search query into individual character strings, wherein at least one of the individual character strings comprises a single character (Warthen does not teach segmenting the search query into individual character strings including single characters. However, Fung does, see Fig. 4 where, see col. 8, lines 13-28, "Preferably, the query includes Chinese characters or syllables that were entered by a user at a first geographic location. Next, in a step 415, the document finder 301 determines words within the query". Thus, it would have been obvious to one of ordinary skill in the database art at the time of the invention to combine the teachings of the cited references because Fung's teachings would have allowed Warthen's method to gain greater versatility in searching the Internet, see col. 2, lines 3-14);

producing a parse tree from at least one parseable character string of the search query (See e.g. Warthen col. 5, lines 45-56, "a user query might use one of the synonyms 'drizzle', 'storming' or 'misting' for raining. By reducing the synonyms to canonical form, the information server does not need to deal with so many questions because, in the above example, four questions collapse into one. Normalizer 160 uses a semantic map, a small portion of which is shown in FIG. 6, to perform the canonical reduction" where the semantic map for the referenced "automobile" qualifies as the claimed "tree"); and

generating at least one keyword based at least on one non-parsable character string of the search query (See e.g. Warthen col. 5, lines 45-56, "a user query might use one of the synonyms 'drizzle', 'storming' or 'misting' for raining. By reducing the synonyms to canonical form, the

information server does not need to deal with so many questions because, in the above example, four questions collapse into one" where the keyword "raining" is generated from the non-parsable character strings "drizzle", "storming", and "misting"),

wherein the parse tree and the keyword are used to return answers to the search query (See e.g. Warthen Fig. 9, "Internet (end user)" and Figs. 3 and 4).

73. The method of claim 72, further comprising:

conducting keyword searching using the at least one keyword (While keyword searching is well known in the art, see e.g. Warthen col. 1, lines 8-19, "initiate a search with a particular set of keywords", the reference also teaches a form of keyword searching using mapping, see e.g. Warthen col. 6, lines 9-14, "FIG. 7 illustrates how a semantic net 200 might be organized to be used to map keywords to questions. Once keywords are mapped to questions, the questions are mapped to answers using question-answer mappings 202").

74. The method of claim 72, wherein the parse tree represents a collection of concepts related to the search query (See e.g. Warthen Fig. 6, where the referenced "automobile" semantic map qualifies as the claimed "tree" and is a collection of concepts related to a search query).

75. The method of claim 74, further comprising matching the parsed concepts to a list of frequently asked questions (See e.g. Warthen col. 6, lines 1-8, "Since the list is of instantiated questions that are based on template questions, they will be found in question-answer mapping table 42" where "Template questions are questions that are mapped to answers in question-answer mapping table 42" and as such qualify as "frequently asked questions").

76. The method of claim 75, further comprising:

identifying at least one answer associated with the list of frequently asked questions that match the parsed concepts and keywords (See e.g. Warthen col. 1, lines 54-67, "The question processor processes the initial user query to identify a set of possible well-formed questions selected from the question database, where a well-formed question is a question in the database that is coupled to at least one answer reference"); and

presenting the at least one answer to a user in a user interface that permits a user to select a desired answer from the one or more answers (See e.g. Warthen col. 4, lines 19-24, "Once the user selects a template question, information server 50 uses AE to generate answers to the questions and either presents the user with one or more URL's of sites that answer the initial question (step 9A) and control passes to an answer display page (step 9B) that presents the user with the answer directly (step 10)").

77. The method of claim 76, further comprising:

logging the search query and at least one answer selected by the user in a log database (See e.g. Warthen col. 3, lines 27-40, "As shown in FIG. 1(a), actions taken by users in response to prompts on the basic set of pages are logged in log files 20" where there is a "log user question" and a "log user pick"); and

analyzing the log database to derive at least one weighting factor indicating how relevant the frequently asked questions are to the parsed concepts and keywords (See e.g. Warthen col. 4, lines 31-42, "The query is logged to log files 20 for use in further refining information server 50" and Claim 9, "removing template questions from the set that have a confidence weight below a predetermined threshold").

78. A parser for a search engine, comprising:

Art Unit: 2168

a segmentation module that segments a search query into one or more individual character strings, wherein at least one of the one or more individual character strings comprises a single character (Warthen does not teach segmenting the search query into individual character strings including single characters. However, Fung does, see Fig. 4 where, see col. 8, lines 13-28, "Preferably, the query includes Chinese characters or syllables that were entered by a user at a first geographic location. Next, in a step 415, the document finder 301 determines words within the query". Thus, it would have been obvious to one of ordinary skill in the database art at the time of the invention to combine the teachings of the cited references because Fung's teachings would have allowed Warthen's method to gain greater versatility in searching the Internet, see col. 2, lines 3-14);

a natural language parser module that produces a parse tree from one or more parsable character strings of the search query (See e.g. Warthen col. 5, lines 45-56, "a user query might use one of the synonyms 'drizzle', 'storming' or 'misting' for raining. By reducing the synonyms to canonical form, the information server does not need to deal with so many questions because, in the above example, four questions collapse into one. Normalizer 160 uses a semantic map, a small portion of which is shown in FIG. 6, to perform the canonical reduction" where the semantic map for the referenced "automobile" qualifies as the claimed "tree"), and

a keyword parser to identify one or more keywords in the search query and to output the keywords (See e.g. Warthen col. 4, lines 31-42, "The initial user query can be a natural language question (e.g., 'Where can I find information on the sport bicycling?') and may well include grammatical errors, or a set of keywords, such as 'info sport bicycling'... When the user presses

Art Unit: 2168

button 84, the initial user query is sent to information server 50 and client interface 60 passes the query to QPE 30" where keywords have clearly been identified and "output" to QPE),

wherein the parse tree and the one or more keywords are used to return answers to the search query (See e.g. Warthen Fig. 9, "Internet (end user)" and Figs. 3 and 4).

79. The parser of claim 78, wherein the parse tree represents a collection of concepts related to the search query (See e.g. Warthen Fig. 6, where the referenced "automobile" semantic map qualifies as the claimed "tree" and is a collection of concepts related to a search query).

80. The parser of claim 78, further comprising a search module that matches the parsed concepts to a list of frequently asked questions (See e.g. Warthen col. 6, lines 1-8, "Since the list is of instantiated questions that are based on template questions, they will be found in question-answer mapping table 42" where "Template questions are questions that are mapped to answers in question-answer mapping table 42" and as such qualify as "frequently asked questions").

81. The parser of claim 80, wherein the search module:  
identifies at least one answer associated with the list of frequently asked questions that match the parsed concepts and keywords (See e.g. Warthen col. 1, lines 54-67, "The question processor processes the initial user query to identify a set of possible well-formed questions selected from the question database, where a well-formed question is a question in the database that is coupled to at least one answer reference"); and

presents the at least one answer to a user in a user interface that permits a user to select a desired answer from the one or more answers (See e.g. Warthen col. 4, lines 19-24, "Once the user selects a template question, information server 50 uses AE to generate answers to the questions and either presents the user with one or more URL's of sites that answer the initial

question (step 9A) and control passes to an answer display page (step 9B) that presents the user with the answer directly (step 10”).

82. The parser of claim 81, wherein the search module:

logs the search query and at least one answer selected by the user in a log database (See e.g. Warthen col. 3, lines 27-40, “As shown in FIG. 1(a), actions taken by users in response to prompts on the basic set of pages are logged in log files 20” where there is a “log user question” and a “log user pick”); and

analyzes the log database to derive at least one weighting factor indicating how relevant the frequently asked questions are to the parsed concepts and keywords (See e.g. Warthen col. 4, lines 31-42, “The query is logged to log files 20 for use in further refining information server 50” and Claim 9, “removing template questions from the set that have a confidence weight below a predetermined threshold”).

#### *Response to Arguments*

Applicant’s arguments with respect to claims 37-41 and 72-82 have been considered but are moot in view of the new grounds of rejection.

#### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron Sanders whose telephone number is 571-270-1016. The examiner can normally be reached on M-Th 8:00a-5:00p.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Vo can be reached on 571-272-3642. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AJS/  
Aaron J. Sanders  
Examiner  
9 August 2007

*SRP*  
8/14

*TV*  
TIM VO  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100